

University of Georgia
Summer Course ENTO 4350 - Crop Specific Insect Management
Dr. David Riley, Department of Entomology
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This course builds on basic pest and crop sciences and synthesizes complete IPM programs for specific crop systems in the Southeastern USA. Lecture and laboratory training will be provided for row crop, vegetable, turf and ornamental production systems with an emphasis on entomology and how entomology interacts with other pest disciplines. The course objectives or expected learning outcomes are:



- (1) Students will acquire in-depth knowledge of pest management based on current literature that can be used to implement comprehensive IPM programs for specific crops within vegetable (e.g. tomato and cabbage), agronomic (e.g. soybean and cotton), turf and ornamental crop systems.
- (2) Students will develop skills in insect pest identification, crop damage classification, selection of pest control tactics, and application of IPM decision criteria such as economic thresholds.
- (3) Students will manage a crop and associated pests through individually applied field and greenhouse projects in the laboratory portion of the course.

Dates: Orientation June 5, Late Registration June 7, This class begins June 8

Lectures Mon. through Thur. 8:00-9:00AM, **Lab** Fri. 8:00-11:15AM

Location: Room 601 TDC

Instructors: D. Riley, R. McPherson, W. Hudson and P. Roberts

Class Schedule

- 6/8. Introduction to the diversity of crop-specific insect pests and a simple model for IPM.
- 6/9. **LAB1:** (Riley) Student field evaluation for knowledge of IPM.
- 6/12. (Riley) Pest identification (ID) - an overview of basic insect taxonomy.
- 6/13. (Riley) Pest identification (ID) - finish overview of basic insect taxonomy and give examples in vegetables.
- 6/14. (Riley) Control tactics - an overview of insect management tactics available relative to vegetable crop economics.
- 6/15. (Riley) Control tactics - vegetable crop economics and the development of Decision Criteria - economic injury level, economic threshold and management time-lines.
- 6/16. **LAB2:** (20 min. **quiz**) (Riley) visit field and/or greenhouse work areas, set up study plots and projects.
- 6/19. Solanaceous crop IPM, insect pest ID and control tactics.
- 6/20. Control tactics and decision criteria for Solanaceous crop pests.
- 6/21. Cole crop IPM, insect pest ID.
- 6/22. Control tactics and decision criteria for Cole crop pests.

6/23. **LAB3:** (20 min. **quiz**) (Riley) after quiz finish control tactics and decision criteria for the first two crop groups. In the field review control tactics - methods and safety issues, also, apply treatments to study plots.

6/26. (Riley) Cucurbit crop pest ID and control tactics.

6/27. (Riley) Cucurbit crop IPM and decision criteria with special emphasis on insect vector management.

6/28. **First Term Exam:** (Riley) 1 hour test covering general IPM and pest problem solving in vegetables.

6/29. (Hudson) Introduction to turf crops and associated pests.

6/30. **LAB4:** (Hudson) turf/greenhouse/nursery commercial sites (*field trip*)

7/3. (Hudson) Turf grass insect ID and classification of damage.

7/4. Holiday

7/5. (Hudson) Turf grass control tactics and IPM decision criteria

7/6. (20 min. **quiz**) (Hudson) Introduction to ornamental crops in nurseries and pest ID.

7/7. **LAB5:** (Riley) Take data from field plots, enter data in lab and analyze using SAS.

7/10. (Hudson) Greenhouse ornamentals in the USA and arthropod pest ID in greenhouses and nurseries.

7/11. (Hudson) Comparison of pest management tactics in greenhouses vs. nurseries.

7/12. (Hudson) Turf/Ornamental IPM decision criteria.

7/13. **Second Term Exam:** (Hudson) Covering IPM in turf/ornamental crops.

7/14. **LAB6:** (Roberts) field visit to cotton plots: sampling, pest ID and treatment decisions.

7/17. (Roberts) Cotton IPM.

7/18. (Roberts) Cotton IPM.

7/19. (McPherson) History of IPM in large scale agronomic crops.

7/20. (McPherson) Soybean crop systems, insect pest ID and typical control tactics.

7/21. **LAB7:** (McPherson) field visit to soybean/tobacco plots: sampling, pest ID and treatment decision guidelines.

7/24. (20 min. **quiz**) Economic thresholds for soybean.

7/25. (McPherson) Tobacco crop systems, insect pest ID.

7/26. (McPherson) Tobacco insect control tactics and decision criteria, economic thresholds for tobacco.

7/27. (McPherson) TSWV management in tobacco.

7/28. **LAB8:** (Riley) Oral presentation of student lab projects (*turn in individual reports*).

8/1. (McPherson) general review.

8/3. **Final Exam:** (McPherson) Covering IPM in cotton, soybean and tobacco crops.



Grade based on the following:

First term exam	(20%)
Second term exam	(20%)
Final exam	(20%)
first quiz	(5%)
second quiz	(5%)
third quiz	(5%)
fourth quiz	(5%)
lab project	(20%)

LAB PROJECT: The project will involve conducting a IPM program on a field or greenhouse crop, with the student involved with all aspects of crop cultivation related to IPM, scouting for insect pests, collection and preservation of insect pests, selection and integration of pest control

tactics, developing pest management decision criteria or a complete IPM program for a given crop. The field reports will have an (1) Introduction, (2) Materials and Method, (3) Analysis and Results, (4) Summary/Conclusion and a (5) Reference List. The only project that could be done in lieu of a field project (see examples below) is a comprehensive insect management web document on a crop of the instructor's choice.

1. Insect population dynamics.
2. Conduct an insect control experiment.
3. Insect behavior study
4. Evaluate a threshold (decision criteria).

List of Books and References Required for the Course:

IPM for Floriculture and Nurseries. 2001. University of California. \$45
Integrated Pest Management for Tomatoes. 1998. University of California. \$30
Integrated Pest Management for Cole Crops and Lettuce. 1992. University of California. \$22
Handbook of Soybean Insects Pest. 1994. Entomological Society of America. \$30
Integrated Pest Management for Cotton in the Western Region of the United States. 1984. University of California. \$30

Suggested Reading:

Garden Insects. 2004. Princeton University Press. \$30
Handbook of Vegetable Pests by John Capinera. 2001. Academic Press NY 729 pp.

GENERAL SCHEDULES:

UGA Thru Term for Summer 2006

Based on 60 minutes daily, 38 hours of classes

Orientation	June 5, M
Advisement	June 6, Tu
Late Registration	June 7, W
Classes begin	June 8, Th
Drop/Add	June 8-12, Th-M
Holiday (Independence Day)	July 4, M
Midterm	July 5, W
Midpoint Withdrawal Deadline	July 7, F
Classes End	Aug. 1, Tu
Final Exams	Aug. 2-4, W-F
Commencement	Aug. 5, Sa
Grades Due	Aug. 7, M

Daily Schedule

1st period	8:00 - 9:00 - Proposed daily lecture period
2nd period	9:15 - 10:15 - proposed lab period on Fridays (see above schedule for days)
3rd period	10:30 - 11:30 - proposed lab period on Fridays (see above schedule for days)
4th period	11:45 - 12:45
5th period	1:00 - 2:00
6th period	2:15 - 3:15
7th period	3:30 - 4:30
8th period	5:00 - 6:15
9th period	6:30 - 7:45
10th period	8:00 - 9:15